

specimen from Java halfway between the yellow form (*cuprina* Felder) and your drawing; it is named *Euschema frühstorferi* Röber, yours being evidently an *extreme* form of that species."

Though it may be only an aberration it seems desirable, for convenience, that this form should have a name, so I propose to call it "*sumatrensis*."

EXPLANATION OF PLATE LXXXII.

Fig. 1. Aberration of *Papilio clytia*, race *panope*.

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|----|-------------------------------|------------------------------|---|---|---|
| 2. | Do. | " | " | " | " |
| 3. | Do. | " | " | " | " |
| 4. | Do. | <i>Cethosia nicobarica</i> . | " | " | " |
| 5. | Do. | <i>Euthalia cibaritis</i> . | " | " | " |
| 6. | <i>Euschema sumatrensis</i> . | | | | |

4. Note on the Cetacean *Sotalia borneënsis*.

By R. LYDEKKER *.

[Received September 29, 1909.]

When describing in the Society's 'Proceedings' for 1901 (p. 88, pl. viii.) an estuarine Dolphin from Borneo, under the name of *Sotalia borneënsis*, I had no information as to the colour of the type-specimen in life, but assumed that this was approximately shown by the skin. In this I was wrong, for I have recently been informed by Mr. Ernest Hose, who saw the specimen alive, that the original colour of the upper surface was pale bluish slate, or slaty blue, and that of the under-parts greyish white. This brings it into much closer connection, so far at least as colour is concerned, with *Sotalia sinensis*, which is described as being cream-coloured with pinkish fins and black eyes. The type-specimen has, however, only $\frac{32}{32}$ teeth, against $\frac{36}{34}$ in the Bornean Dolphin, and as the teeth are smaller in the Bornean than in the Chinese specimen, the specific distinctness of the former may, at all events provisionally, be still admitted. I may add that a plaster-model of the type-specimen of *S. borneënsis* preserved in the British Museum (Nat. Hist.) has been coloured from a sketch kindly supplied by Mr. Hose.

* Communicated by permission of the Trustees of the British Museum.

December 14, 1909.

G. A. BOULENGER, Esq., F.R.S., Vice-President,
in the Chair.

The Secretary read the following report on the additions made to the Society's Menagerie during the month of November 1909:—

The registered additions to the Society's Menagerie during the month of November were 176 in number. Of these 89 were acquired by presentation, 24 by purchase, 22 were received on deposit, 39 in exchange, and 2 were born in the Gardens.

The total number of departures during the month, by death and by removals, was 199.

Amongst the additions special attention may be called to the following:—

1 Reen Gazelle (*Gazella marica*) from Central Arabia, deposited on November 20th.

1 Uvaan Parrakeet (*Nymphicus uvaensis*) from the Loyalty Islands, deposited on November 9th.

A collection of 35 birds, including 11 Blue Birds (*Sialia sialis*), 2 Red-tailed Buzzards (*Buteo borealis*), 6 Hermit Thrushes (*Hylocichla guttata pallasi*), 4 Wood Thrushes (*Hylocichla mustelina*), and others from North America, received in exchange from the New York Zoological Society on November 18th.

Mrs. R. Haig Thomas, F.Z.S., exhibited seven skins of Hybrid Pheasants and made the following remarks:—

One of the pheasants exhibited here this evening is rather interesting to students of Heredity. The following is a short account of the pedigree of this bird:—

On March 1st, 1907, two silver hens were mated with a Swinhoe cock. Twenty F. 1 hybrids were reared, thirteen cocks and seven hens.

On January 14th, 1908, the seven F. 1 hens were mated with the same Swinhoe cock, and from these were reared five F. 2 hybrids, four cocks and one hen. It is about this hen I wish to say a few words.

We have plenty of evidence of hens transmitting the cock plumage of their kind to hybrid male descendants, but I am not aware that any record of the converse happening has been published.

The Mendelian theory that the male is a homozygote for sex pure in maleness and the female a heterozygote carrying both sexes in its germ cells, gives us a very clear interpretation of certain recent sex experiments, but it must be admitted that it is difficult to explain on this hypothesis how the Swinhoe cock has handed down to his progeny the exact plumage of the hens of his species. If you compare the F. 2 hen with the pure

Swinhoe and pure silver hens, you will see that is so. Although amongst many birds the plumage of the young male often resembles that of the adult hen of his species, yet in the case we are considering, at no stage of his existence does the Swinhoe cock put on the plumage of the adult hen of his species, and at three months he has already assumed part of the adult male plumage, though he does not appear in the brilliant full dress until the following autumn. As the coupling of plumage and sex is a pretty general rule, these facts seem to point to the Swinhoe cock being possibly a heterozygote for sex.

The following is the method I adopt in my breeding experiments:—

Birds are mated in January in a padlocked pen wired all round and all over, of which only the keeper and myself possess the key. Each pen is numbered and recorded in a book with the number of birds and their species. When gathering the eggs in a pen these are marked with its number and dated before leaving that pen. When the eggs are set under a hen the lid of her sitting box is marked with the number of the pen from which the eggs were gathered, the date of sitting, and number of eggs set. When the chicks are hatched they are placed with the hen in a coop with the pen number painted on it, having a small covered-in run in front so that the chicks can never get away.

At six weeks old the chicks are ringed on the leg: the ring has the year, the number of the pen, and the generation "F. 1" or "F. 2," stamped on it. This year they were also wing-labelled. Records of all these matters are taken down in pencil in a notebook at the pens with date of entry and copied into a large book, a four-year diary.

Mr. D. Seth-Smith, F.Z.S., the Society's Curator of Birds, exhibited a photograph (text-fig. 280), taken by Mr. W. S. Berridge, F.Z.S., of a nest of *Scopus umbretta*, and made the following remarks:—

A pair of South African Hammerkops or Tufted Umbres belonging to the Society were placed in the Great Flying Aviary last spring, and forthwith commenced to collect sticks and any rubbish they could find with a view to nest-building. They first selected a site about ten feet from the ground on the top of a small kennel-shaped box, originally fixed up as a nesting-box for Laughing Kingfishers. Here they constructed a large platform of sticks which they cemented together with mud and commenced to build a dome-shaped roof over it.

Apparently they came to the conclusion that the site was not a very suitable one, as they left this nest when about half finished and selected another site, this time on the ground inside a small shelter shed some five feet in diameter. They built an enormous dome-shaped nest in this, completely filling up the shed to a height of about two feet six inches. But this did not suit them,

probably from the fact that rats soon discovered in this nest a snug shelter of which they were not slow in availing themselves. The nearly-finished nest was deserted and the roof of the shed next chosen as a site for a third nest.

Here another huge structure, consisting of quite a cartload of sticks and other rubbish, was constructed. But presumably on account of the interference of the Ibises and other birds in the aviary, this was again deserted and a fourth site chosen.

This time a large nesting-log, fixed twenty feet from the ground in the fork of a dead, ivy-covered tree, was chosen as a base on

Text-fig. 280.



Nest of *Scopus umbretta* in the Society's Gardens.

which to construct the nest. From the time it was commenced it appeared to be complete in about six weeks, but the birds continue daily to add to it. It is composed of sticks, cemented together with mud. It measures four feet in diameter, is about three feet in height, and the single compartment has an inside diameter of nearly two feet. The entrance hole is five inches in diameter. Curiously enough, so far as I am aware, no eggs have been laid by these birds, although they have been nest-building throughout the whole of the summer and autumn and have frequently paired.

Dr. H. B. Fantham, F.Z.S., Protozoologist to the Grouse Disease Inquiry, exhibited microscopic preparations and sketches



C. W. Andrews. photo.

Bale & Danielsson. L⁴

ROBBER CRABS (BIRGUS LATRO) CLIMBING A SAGO-PALM.

based on his original observations, illustrating the life-cycle of the Protozoön, *Eimeria* (*Coccidium*) *arium* Silvestrini and Rivolta—also known as *Coccidium tenellum* Railliet and Lucet—a Sporozoön parasitic in the alimentary canal of Grouse. The parasite produces a fatal intestinal coccidiosis in Grouse chicks, especially during the first month or six weeks of their life. The immediate effect of coccidiosis in Grouse chicks is enteritis accompanied by diarrhœa, and a similar disease in Fowl chicks is known among poultry-men as “white diarrhœa” or “white scour.”

The life-history of a *Coccidium* may be divided into two cycles: (α) asexual multiplication, or schizogony, for the purpose of increasing the numbers of the parasite within the host, (β) sexual reproduction, or sporogony, for the purpose of infecting fresh hosts by means of resistant spores adapted for extra-corporeal existence. Schizogony and sporogony occur in both the duodenum and cæcum of the Grouse chicks, causing great destruction of the epithelium of the gut. The merozoites, or daughter parasites produced during schizogony, are arranged “en barillet,” like the segments of an orange, within the epithelial cells. A thin cyst wall is secreted precociously around the oval macrogamete (♀) while still within the epithelial cell, leaving a micropyle for the entry of the microgamete (♂) later.

The cæca of Grouse chicks dying from coccidiosis are full of oval spores (oöcysts), which are passed out with the cæcal droppings, forming a source of infection on the moors. Each oöcyst gradually develops four sporocysts within itself, while still in the cæcal droppings, and each sporocyst ultimately contains two sporozoites. On the ingestion of the spores by other Grouse, the sporozoites are liberated by the action of the pancreatic juice of the new host, and proceed to penetrate the epithelium of its gut-wall.

Larvæ of *Scatophaga*, found in Grouse-droppings, swallow the Coccidian spores and void them uninjured, thus aiding in the dissemination of the spores in nature. Coccidian spores are very resistant to varying conditions of weather and, being light, are easily blown about by the wind, so that the moors are being constantly contaminated during an epizootic of coccidiosis.

The coccidiosis of Grouse is transmissible directly to young fowls and young pigeons by feeding these birds on food mixed with fæces of infected Grouse. Adult Grouse are much less susceptible to coccidiosis than immature birds.

Dr. C. W. Andrews, F.R.S., F.Z.S., exhibited an enlarged photograph (Pl. LXXXIII.) of the Robber Crab (*Birgus latro*) on Christmas Island, and communicated the following account of its habits:—

It is somewhat remarkable that although the Robber or Coconut Crab (*Birgus latro*) has been known for some centuries and